

OWNER'S MANUAL —
Please read before using this equipment.

32-2054



Thank you for purchasing the RadioShack 40W AC/DC PA Amplifier. It gives you the versatility and power you need in a professional sound system. Your amplifier's wide frequency response easily handles amplification of voice and music. Use it in meeting halls and auditoriums, at sports events, in schools, and in the office for paging systems - anywhere you need to deliver special announcements with excellent sound.

! IMPORTANT !

If an icon appears at the end of a paragraph, go to the box on that page with the corresponding icon for pertinent information.



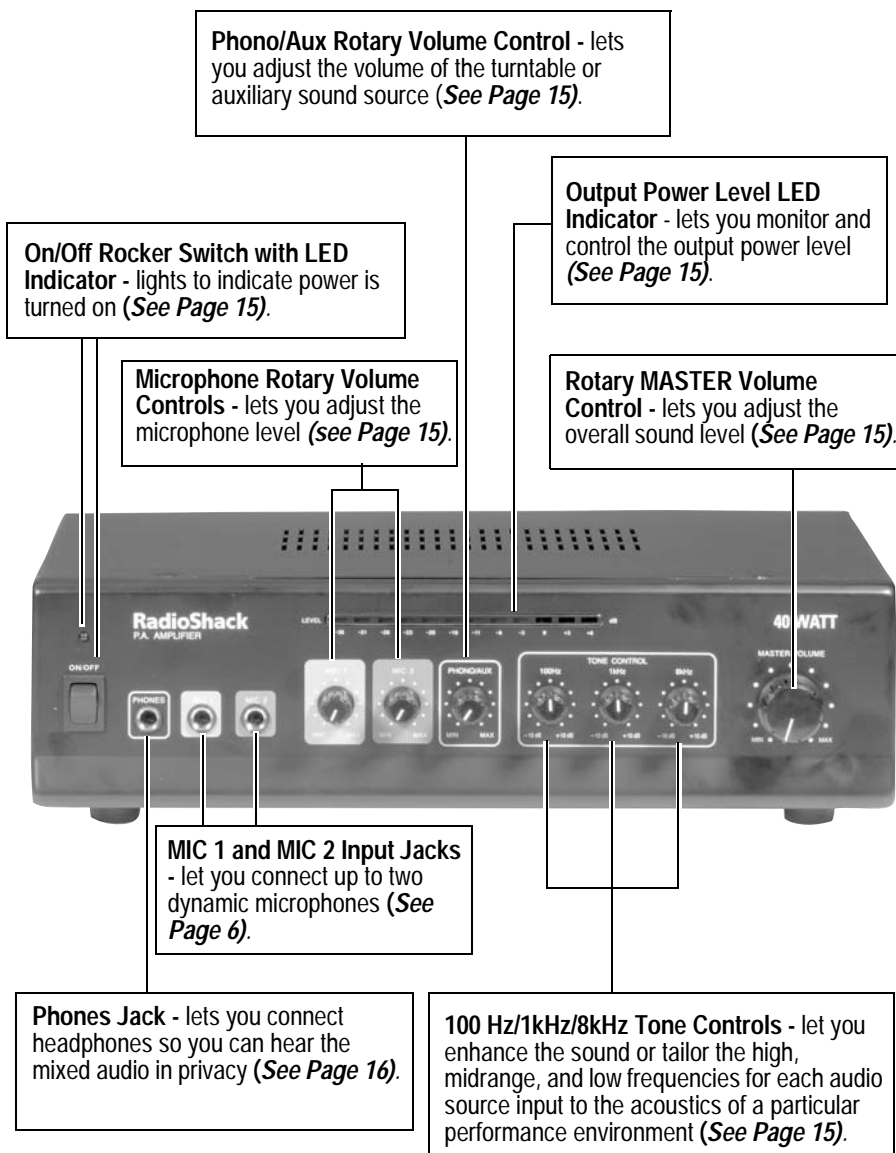
— **Caution**



— **Note**

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Front View of Amplifier



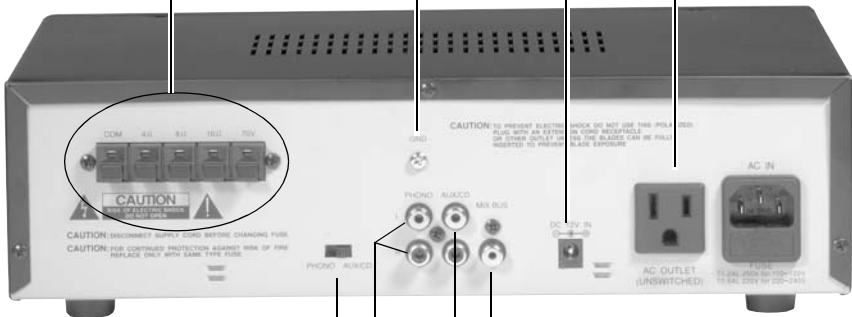
Rear View of Amplifier

COM/4Ω/8Ω/16Ω/70V Speaker Connectors - let you easily connect speaker wires directly to the amplifier after the total speaker impedance is determined (*See Page 9*).

AC IN - supports other music instrument/amplifier power with maximum load of 100W (*See Page 14*).

DC 5A/12V Input Jack - lets you power the amplifier from a 12V vehicle battery source (*See Page 15*).

Ground Screw - connect the ground wire (black or green) to this screw to avoid low-frequency hum.



Phono to AUX/CD Slide Switch - selects turntable or auxiliary CD sound source (*See Page 6*).

Phono Jacks - let you connect a turntable (*See Page 6*).

Mix Bus Jack - connects extra amplifier for multiple audio source (*See Page 7*).

AUX/CD Input Jack - lets you connect a variety of audio input sources for music and special effects (*See Page 6*).

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PREPARATION

PLACING THE AMPLIFIER

Before you use your amplifier, be sure to place it on a location with adequate ventilation. Do not put it on thick carpeting (which can restrict air flow) or near a heat source, such as a heat vent or radiator (which can cause it to overheat).

PLACING THE SPEAKERS

Speaker placement depends on your room's size and arrangement. We recommend you play a wide-range recording and experiment with speaker placement until you find the locations that result in the best sound. For the best results, point the speakers in toward the listeners, especially if you place the speakers far apart so their coverage areas overlap to prevent dead spots (areas not covered by the speaker's sound). Position the speakers slightly above the level of the listeners' heads and be sure you have determined the correct speaker impedance (see "Connecting the Speakers" on Page 7).

PRESETTING THE CONTROLS

Before you begin making connections or using your amplifier, preset the audio input sources' and amplifier's controls to avoid overdriving a channel or producing loud sounds.

Presetting the Audio Input Sources

Set the audio input sources' controls to these levels.

Audio Device	Control	Setting
Turntable	Power	Off
Tape Deck	Power	Off
CD Player	Power	Off
Amplifier Receiver	Power Tone	Off Flat

Presetting the Amplifier

Warning: To prevent possible hearing loss, set the amplifier's controls to the settings shown below.

Control	Setting
Power	Out
MIC 1, MIC 2, PHONO/AUX	MIN
100 Hz, 1 kHz, 8 kHz	0dB (mid position)
MASTER VOLUME	MIN

After you turn on the amplifier or change the program source, set the controls to a comfortable listening level.

CONNECTIONS

CONNECTING INPUT SOURCES

You can connect optional components, such as microphones, tuners, turntables, or CD players to your amplifier to expand your system. To prevent hum and other noise, use low-capacitance shielded cable. Your local RadioShack store carries a wide selection of audio components and connecting cable.

Connecting Microphones

You can connect one dynamic microphone (not supplied) to **MIC 1** and another to **MIC 2** using a 1/4" (6.35 mm) plug.

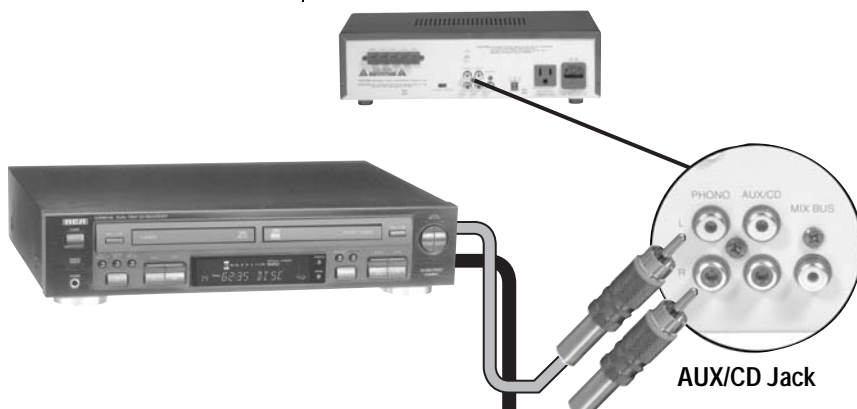


Connecting a Turntable

You can connect a low level audio input source, such as a magnetic cartridge turntable, to the amplifier's **L** and **R PHONO** jacks. With this connection, set the **PHONO** and **AUX/CD** selector switch to **PHONO**.

Connecting an Auxiliary Sound Source

You can connect any high-level sound source, such as a CD player, tape deck, or tuner, to the amplifier's **AUX/CD** jack.




Connecting the MIX BUS Jack

You can connect another MP-40 amplifier to this jack (shown on page 3) to double the size of your PA system. This lets you use up to four microphones and two turntables (or two auxiliaries) sound sources.

Use a shielded cable with phono plugs at each end to connect the amplifier. Connect the cable between the two amplifiers' **MIX BUS** jacks. For the best results, use the most appropriate cable length.


CONNECTING THE SPEAKERS

You can connect one or more 4-, 8- or 16-ohm speakers to the amplifier, with or without transformers. To ensure equal volume from each speaker, all the connected speakers should have the same impedance rating.

Proper phasing is important when you use more than one speaker in the same room or area. Out-of-phase speakers can lose up to one-half of their potential volume, and can have a significantly decreased bass effect .

Most speaker terminals are color-coded or have a mark that indicates the terminal's polarity. Usually, terminals with positive polarity are red or have a plus (+) symbol, and terminals with negative polarity are black or have a minus (-) symbol. Phasing is correct when you connect + to + and - to -.

DETERMINING TOTAL SPEAKER IMPEDANCE

Before you connect speakers to the amplifier, you must determine the total speaker impedance. 

To determine total speaker impedance, you must first decide if you are connecting the speakers in series, parallel, or a series/parallel combination.



NOTE

Proper phasing occurs when speakers are set to allow sound to flow in the same direction.



CAUTION

- A total speaker impedance higher than 16 ohms or lower than 4 ohms can damage your amplifier.
- When determining the total speaker impedance, first determine whether you are connecting the speakers in series, parallel, or a series/parallel combination.

NOTE

For the best results when connecting speakers (in series or parallel), only use speakers having the same impedance.

NOTE

If you connect speakers without transformers, the speaker wire should be no longer than 50 feet (See "Connecting Speakers with Transformers" on page 13).

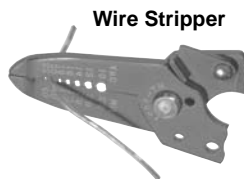
Important: If you are connecting more than two speakers in series only or parallel only, be sure the total impedance does not exceed the amplifier's maximum impedance (16 ohms) or fall below the minimum impedance (4 ohms). You can achieve a proper total impedance by combining series and parallel connections.

PREPARING THE SPEAKER WIRE

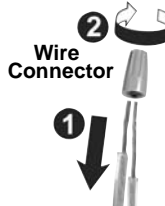
Use the shortest length of wire possible to connect the speakers. After placing the speakers in the desired location, determine the wire length and choose the appropriate gauge size.

Wire Length	Wire Gauge
25 feet or less	18-gauge
Over 25 feet	16-gauge

- Use a wire stripper (not supplied) to remove about half-inch of insulation from the end of the speaker wire.



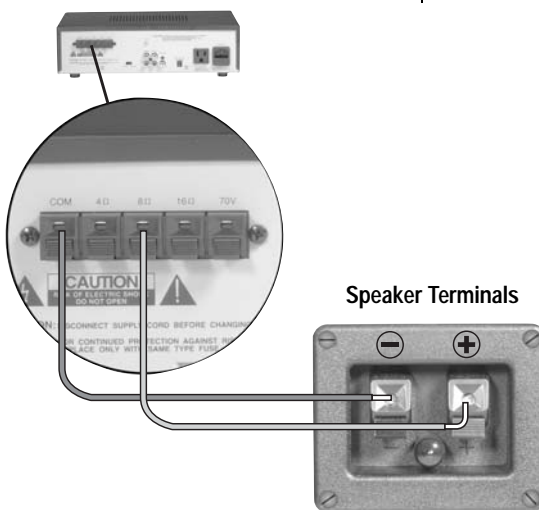
- Then, attach a wire connector (not supplied) and twist the exposed wire to secure all of the wire strands.



- To connect the speaker wire to the amplifier, press down the appropriate push terminal lever on the amplifier and insert the end of the wire into the terminal's hole. Then, release the lever to secure the wire.

CONNECTING ONE SPEAKER

Connect the speaker's negative (-) terminal to the amplifier's **COM** terminal. Then, connect the speaker's positive (+) terminal to the speaker terminal (4 Ω , 8 Ω , or 16 Ω) that matches the speaker's impedance.

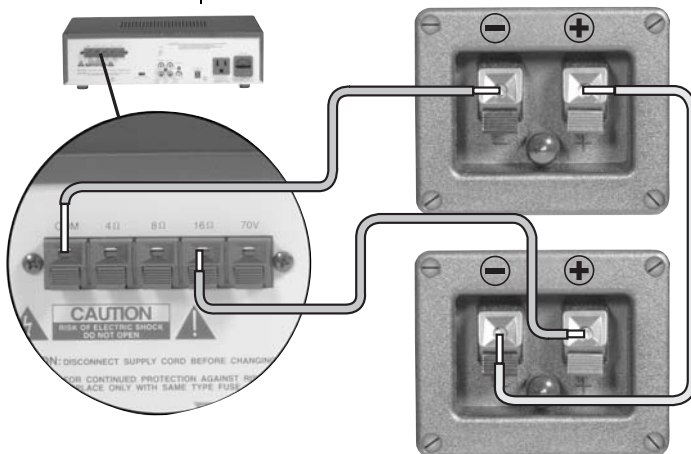


CONNECTING TWO SPEAKERS IN SERIES

Speakers are connected in series when the first speaker's positive terminal is connected to the next speaker's negative terminal.

- Determine the total speaker impedance of speakers you want to connect in series by adding up the individual impedances of all the connected speakers.

For example: If connecting two 4-ohm speakers in series, your total speaker impedance is 8 ohms.



Follow these steps to connect speakers in series.

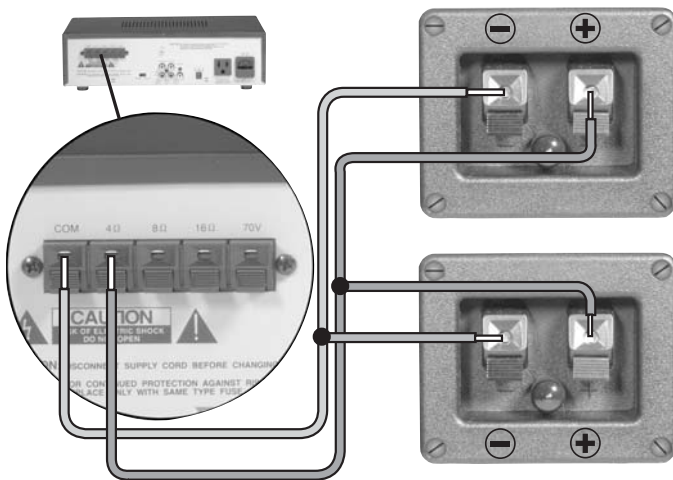
1. Connect the first speaker's positive terminal to the other speaker's negative terminal.
2. Connect the first speaker's negative terminal to the amplifier's **COM** terminal.
3. Connect the other speaker's positive terminal to the amplifier's terminal (4 Ω , 8 Ω , or 16 Ω) that matches the total speaker impedance.

CONNECTING TWO SPEAKERS IN PARALLEL

Speakers are connected in parallel when all speakers' negative terminals are connected together and all their positive terminals are connected together.

- Determine the total speaker impedance of speakers you want to connect in parallel by dividing the impedance of one speaker by the number of speakers.

For example: If connecting two 8-ohm speakers in parallel, divide 8 (one speaker's impedance) by 2 (number of speakers). Your total speaker impedance is 4.



Follow these steps to connect two speakers in parallel.

1. Connect both speaker's negative (-) terminals to each other. Then, connect both wires to the amplifier's **COM** terminal.
2. Connect both speakers' positive (+) terminals to each other. Then, connect both wires to the amplifier's speaker terminal (4 Ω , 8 Ω , or 16 Ω) that matches the total speaker impedance.

CONNECTING FOUR SPEAKERS IN SERIES/PARALLEL COMBINATION

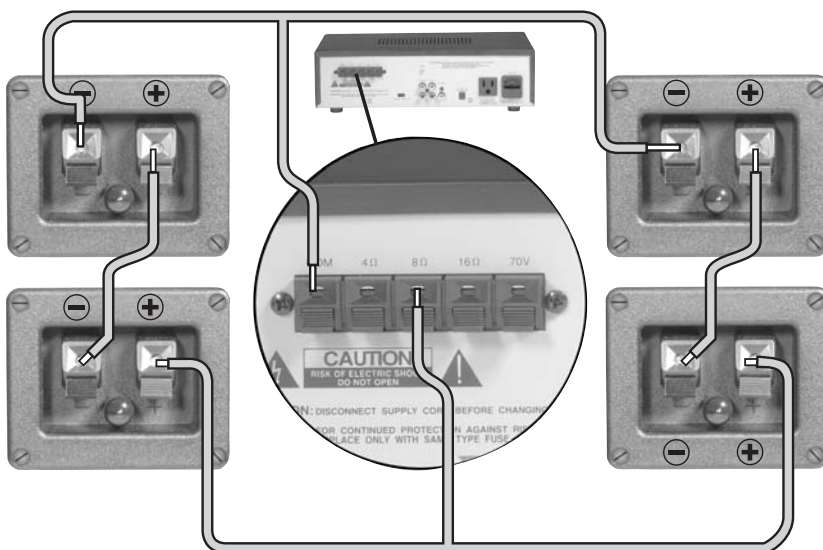
Follow these steps to combine series and parallel combinations ✓.

1. Group the four speakers into two pairs.
2. Connect each pair of speakers in series. If you connected 8-ohm speakers, the total impedance of each pair is 16 ohms ($8+8 = 16$).

NOTE

If each of the four speakers is 8 ohms, the total speaker impedance of the combined series/parallel connection described at right is also 8 ohms. Likewise, the total speaker impedance is 4 or 16 ohms if the speakers are 4 or 16 ohms, respectively.

3. Connect each pair of speakers in parallel. If you connected 8-ohm speakers, the total impedance of both pairs is 8 ohms ($16/2 = 8$).
4. Connect the speakers' negative (-) terminals to the amplifier's **COM** terminal.
5. Connect the speakers' positive (+) terminals to the amplifier's (4 Ω , 8 Ω , or 16 Ω) terminal that matches the total speaker impedance, as calculated in Step 3.




CONNECTING SPEAKERS WITH TRANSFORMERS


For the best results when you connect two or more speakers to your system, you can use a line transformer (not included) for each speaker.

Transformers allow you to:

- connect speakers with different impedances without causing output differences between the speakers.
- add or remove a speaker from the system without having to recalculate the entire system's impedance.
- reduce signal loss when you use speaker wire over 50 feet (15.24 meters) long.

Line transformers have several connectors called taps. The primary taps on one side of the transformer are the inputs, and are rated in watts. The secondary taps on the other side of the transformer are the outputs, and are rated in ohms. 

Follow these steps to connect the speakers with the transformers. Example shown on next page.

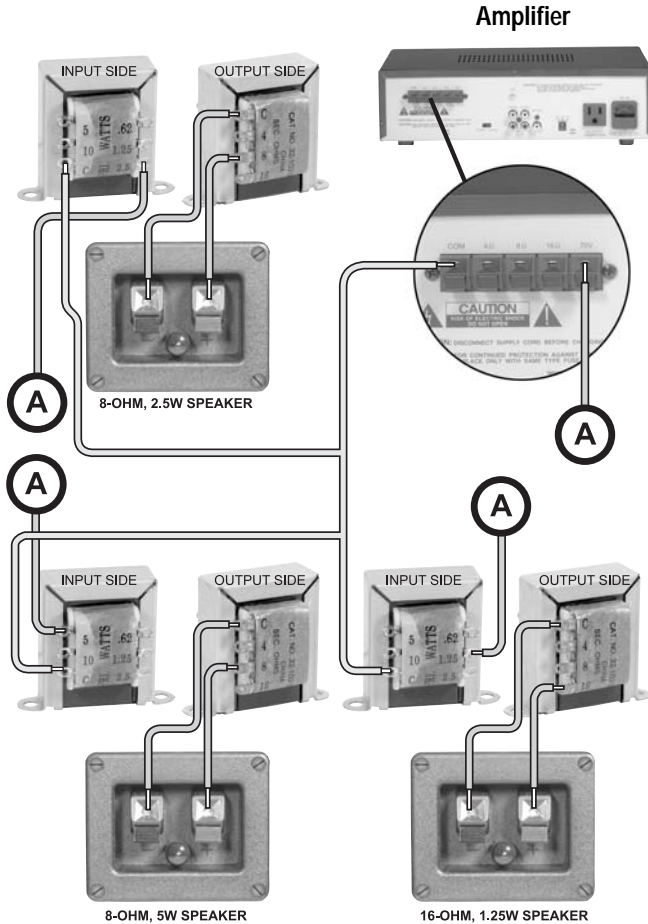
1. Connect a wire from the amplifier's **70V** terminal to the transformer's desired primary tap (10, 5, 2.5, 1.25 or 0.62 watts). 
2. Connect a wire from the amplifier's **COM** terminal to the C (common) taps on the transformer's primary side.
3. Connect a wire from the speaker's positive (+) terminal to the transformer's secondary tap that matches the speaker's total impedance (4 Ω , 8 Ω , or 16 Ω).
4. Connect a wire from the speaker's negative (-) terminal to the C (common) tap on the transformer's secondary side.

CAUTION

- Before you connect the speakers, be sure the total wattage of the primary tap you use does not exceed the amplifier's maximum 40-watt output power rating.
- Avoid multiple connections to the amplifier's **70V** and **COM** terminals.

NOTE

Usually, a speaker in a system uses the same wattage tap. If you want a particular speaker to have a higher volume level, connect the wire from the **70V** terminal to a higher wattage tap on its transformer.



Note: The wires labeled with an A are connected to each other.

CONNECTING POWER

To connect the amplifier to power, plug the female end of the supplied AC power cord into the amplifier's **AC IN** jack and the other end to any standard AC outlet.

CONNECTING THE DC 12V IN JACK

To power the amplifier from your vehicle's 12V battery, plug the supplied DC power cable's barrel plug to the **DC 12V IN** jack, and then connect the other end to your vehicle's 12V accessory socket, such as a cigarette-lighter socket. ⚡

REPLACING THE DC POWER CORD'S FUSE


If the amplifier does not operate from a 12V battery source, check the fuse in the cigarette lighter plug. If the fuse is blown, remove the cap of the plug and replace the fuse with the proper type and rating (6A/250V).

OPERATION

Follow these steps to use your amplifier.

1. Set the **ON/OFF** switch to the ON position.
2. Start the input sound source.
3. Set **MASTER VOLUME** approximately to the mid-position. The **LEVEL** indicator on the front panel flashes from the left to the right showing the sound level.
4. Adjust the following controls to the desired volume and balance: **MIC 1, MIC 2, PHONO/AUX, 100Hz, 1kHz, 8 kHz**
5. After you get the desired balance, adjust the **MASTER VOLUME** to the desired volume level.

MONITORING THE SOUND SOURCES

To monitor the sound sources, insert the 1/4-inch (6.35 mm) plug of either mono or stereo headphone (not supplied) into the amplifier's **PHONES** jack . Using headphones lets you easily check and adjust the sound sources' balance.

LISTENING SAFELY

To protect your hearing, follow these guidelines.

- Always start by setting the volume to the lowest level possible before you begin listening.

WARNING: To reduce the risk of fire or shock hazard, do not expose this product to rain or moisture.


**CAUTION**

RISK OF ELECTRIC SHOCK
DO NOT OPEN



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER OR BACK. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.





The lightning symbol is intended to alert you to the presence of uninsulated dangerous voltage within this product's enclosure that might be of sufficient magnitude to constitute a risk of electric shock. Do not open the product's case.



The exclamation mark symbol is intended to inform you that important operating and maintenance instructions are included in the literature accompanying this product.

**CAUTION**

- Your vehicle must have a negative ground electrical system. If you are not sure, check with your vehicle dealer.
- Unplug the AC power cord before you connect the DC power cable. Likewise, disconnect the DC power cable before you plug in the AC power cord.

**NOTE**

Your local RadioShack store carries a wide selection of headphones.

- Put the headphones on, and then gradually increase the volume to your desired listening level.
- Do not listen at extremely high volume levels. Extended high-volume listening can lead to permanent hearing loss.
- Once you set the volume, do not increase it. Over time, your ears adapt to the volume level, so a volume level that does not cause discomfort might still damage your hearing.

TROUBLESHOOTING

We do not expect you to have any problems with your amplifier. But if you do, these suggestions might help.

Problem	Possible Cause	Solution
No power.	Sound source or speakers not connected properly.	Check all connections.
No sound.	Amplifier's MASTER VOLUME, MIC 1, MIC 2, PHONO/AUX, 100 Hz, 1kHz, 8 kHz controls set to minimum.	Adjust the volume control to desired setting.
	Sound source or speakers are not connected properly.	Check all connections.
	A microphone or cable might be faulty.	Check all microphones and cables.
	The speaker's wires might be the wrong impedance.	Make sure all connected speakers have the same impedance rating.
	The speaker's wires might be too small.	Make sure the speaker's wires are the correct gauge according to length.
Feedback.	The amplifier might have shut down.	Turn the amplifier off and let it cool. Make sure the amplifier is properly ventilated, and then turn it back on.
	Microphones or speakers are too close together.	Reposition the microphones and speakers.

CARE

- Keep the amplifier dry; if it gets wet, wipe it dry immediately.
- Use and store the amplifier only in room temperature environments.
- Handle the amplifier carefully; do not drop it.
- Keep the amplifier away from dust and dirt, and wipe it with a damp cloth occasionally to keep it looking new.

SERVICE AND REPAIR

If your amplifier is not performing as it should, take it to your local RadioShack store for assistance. To locate your nearest RadioShack, use the store locator feature on RadioShack's website (www.radioshack.com), or call 1-800-The Shack (843-7422) and follow the menu options. Modifying or tampering with the amplifier's internal components can cause a malfunction and might invalidate its warranty.

SPECIFICATIONS

Output Power at THD 10%, 4-Ohm Load 1 kHz 40W

Total Harmonic Distortion (at 5 Watts, 4 ohms, 1 kHz, with Band Pass Filter)

MIC.....0.50%

AUX.....0.10%

PHONO0.30%

Input Sensitivity (at 10%, THD, 1kHz)

MIC.....2.5 mV

AUX.....150 mV

PHONO3.5mV

Signal to Noise Ratio with A-WTD

MIC.....60 dB

AUX.....80 dB

PHONO70 dB

Hum and Noise at 4 ohms

At MASTER VOLUME MIN1 mV

At MASTER VOLUM MAX50 mV

Power Requirements.....120V AC 60 Hz

12VDC

Dimensions 3 3/8 X 12 3/4 X 8 7/8 inches (HWD)
(8.5 X 32.4 X 22.6 cm)

*Specifications are typical; individual units might vary.
Specifications are subject to change and improvement
without notice.*

ACCESSORIES

The following accessories are available at your local RadioShack store. To locate your nearest RadioShack, use the store locator feature on RadioShack's website (www.radioshack.com), or call 1-800-The Shack (843-7422) and follow the menu options.

Transformer



Speaker Wire



Unidirectional Dynamic Microphones



Headphones



**Wire
Connector**



Wire Stripper



Limited One-Year Warranty

This product is warranted by RadioShack against manufacturing defects in material and workmanship under normal use for one (1) year from the date of purchase from RadioShack company-owned stores and authorized RadioShack franchisees and dealers. EXCEPT AS PROVIDED HEREIN, RadioShack MAKES NO EXPRESS WARRANTIES AND ANY IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE DURATION OF THE WRITTEN LIMITED WARRANTIES CONTAINED HEREIN. EXCEPT AS PROVIDED HEREIN, RadioShack SHALL HAVE NO LIABILITY OR RESPONSIBILITY TO CUSTOMER OR ANY OTHER PERSON OR ENTITY WITH RESPECT TO ANY LIABILITY, LOSS OR DAMAGE CAUSED DIRECTLY OR INDIRECTLY BY USE OR PERFORMANCE OF THE PRODUCT OR ARISING OUT OF ANY BREACH OF THIS WARRANTY, INCLUDING, BUT NOT LIMITED TO, ANY DAMAGES RESULTING FROM INCONVENIENCE, LOSS OF TIME, DATA, PROPERTY, REVENUE, OR PROFIT OR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, EVEN IF RadioShack HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

In the event of a product defect during the warranty period, take the product and the RadioShack sales receipt as proof of purchase date to any RadioShack store. RadioShack will, at its option, unless otherwise provided by law: (a) correct the defect by product repair without charge for parts and labor; (b) replace the product with one of the same or similar design; or (c) refund the purchase price. All replaced parts and products, and products on which a refund is made, become the property of RadioShack. New or reconditioned parts and products may be used in the performance of warranty service. Repaired or replaced parts and products are warranted for the remainder of the original warranty period. You will be charged for repair or replacement of the product made after the expiration of the warranty period.

This warranty does not cover: (a) damage or failure caused by or attributable to acts of God, abuse, accident, misuse, improper or abnormal usage, failure to follow instructions, improper installation or maintenance, alteration, lightning or other incidence of excess voltage or current; (b) any repairs other than those provided by a RadioShack Authorized Service Facility; (c) consumables such as fuses or batteries; (d) cosmetic damage; (e) transportation, shipping or insurance costs; or (f) costs of product removal, installation, set-up service adjustment or reinstallation.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

RadioShack Customer Relations, 200 Taylor Street, 6th Floor, Fort Worth, TX 76102

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